United States Department of Agriculture

NRCS Natural Resources Conservation Service

Year 2003
Progress Report of Activities

Issued April 2004

Los Lunas Plant Materials Center

1036 Miller Street SW, Los Lunas, NM 87031 Tel: (505) 865-4684, FAX (505) 865-5163, Web Site: Plant-Materials nrcs.usda.gov

Who We Are

The Los Lunas Plant Materials Center (LLPMC) is one of 26 Plant Materials Centers operated by the USDA Natural Resources Conservation Service (NRCS). Areas served by the LLPMC include New Mexico, Northeast Arizona, Southeast Colorado, West Texas, and Southeast Utah. The LLPMC is located twenty-five miles south of Albuquerque in Los Lunas, New Mexico. It is operated in conjunction with the New Mexico State University Agricultural Science Center. The facility is located in the Middle Rio Grande Valley and includes 200+ acres of irrigated land.

New Mexico Plant Materials Center at Los Lunas, NM

What We Do

It is our mission to develop, test and transfer effective, state-of-the-art plant science technology to meet customer and resource needs. The LLPMC targets these major land resource areas (Ecozones):

- New Mexico and Arizona mountains
- San Juan River Valley plateaus and mesas
- Southern desert basin, plains and mountains
- Southern Rocky Mountains
- High intermountain valleys
- Pecos–Canadian plains and valleys
- Southern high plains

The LLPMC emphasizes using native plants to solve conservation problems. Environmental conditions including low precipitation, high intensity rainfall, wind, topography, and varied land uses combine to produce a variety of problems needing plant material solutions.

The LLPMC collects superior adapted plants for testing, selecting, and distributing to commercial growers along with seed and plant production technology. Additionally, plant establishment technologies are developed or refined that require minimal or no irrigation in the arid southwest. The following major objectives are addressed:

- Rangeland Erosion Control
- Cropland Erosion Control
- Water Quality Maintenance and Improvement
- Wildlife Habitat Improvement

The articles on the following pages provide a brief summary of Year 2003 accomplishments. For more detailed technical information, request the *Year 2003 Technical Report*.

National Park Service Agreement

The LLPMC has a cooperative agreement with the National Park Service (NPS) to assist the NPS at several of the national parks in the LLPMC's service area. To revegetate disturbed areas in the parks (such as roadsides, trails, campgrounds, and other construction areas), the LLPMC provides the NPS with plant materials of the parks' local, native ecotypes. This helps to reduce the potential for water and wind erosion. The LLPMC produces both seed and containerized transplants for revegetation purposes.

In 2003, the LLPMC had four different native grass species planted in 3 acres of seed production fields. The

LLPMC produced 53 pounds native grass seed from these fields.In 2003, the LLPMC delivered 585 containerized transplants of 10 different native shrub species to the NPS.

Plant Materials Center Important to the National Park Service

Muttongrass and San Juan Penstemon Mark Spring

Muttongrass seed, falling to the blades of the harvester, recently marked springtime at the Los Lunas Plant Materials Center. Dan Goodson, agronomist, was harvesting the seed for National Parks throughout the southwest.

Dan Goodson harvesting muttongrass

The National Park Service relies on the Los Lunas Plant Materials Center for the production of plant species in which they are particularly interested. The seed the National Park Service uses must meet extremely rigorous standards to prevent contamination.

The National Park Service requires seeds that are descendant from ecosystems in their parks. By being so exacting, these land managers can assure that the plants grown from these seeds can, in the long run, tolerate the climate extremes of the sites where they are sown.

San Juan penstemon colors a field at the Los Lunas Plant Materials Center

Muttongrass is important to the National Park Service and others because it is very palatable to elk and other grazing animals. It is the dominant grass component under Ponderosa pine. Like the Ponderosa pine it requires significant water, 16–20 inches per annum. In New Mexico it is typically found in 7000–9000 foot altitude areas, and muttongrass is important in our National Parks and forestlands throughout the southwest.

Like the harvesting of muttongrass, the blooming of the San Juan penstemon recently signaled the return of warm weather at the Plant Materials Center. The penstemon is a wildflower, great for xeri-scaping in yards, along highways, and anywhere where drought resistant flowers are needed.

In the Albuquerque area, penstemon will thrive without any irrigation, and at the Plant Material Center in Los Lunas it is grown without irrigation. It typically requires only 7–8 inches of water a year.

Assistance–Conservation Concerns

The LLPMC has worked directly with NRCS Field Offices, Resource Conservation and Development Offices, and Soil and Water Conservation Districts to provide assistance with the following conservation concerns:

- Wind erosion
- Increased forage on pastureland
- Water erosion

Solutions to the concerns have included field wind strips, forage production studies, and revegetation techniques. Providing assistance allows the LLPMC opportunities to test new plant materials and demonstrate new planting techniques.

Wind Erosion

The LLPMC continues to provide Giant sacaton transplants for trial plantings throughout the LLPMC service area. These trial plantings help to evaluate the effectiveness of Giant sacaton as field and farmstead wind strip that aids in the prevention of wind erosion. The first of the trial wind strip plantings was established in 1999 in Columbus, New Mexico. Columbus is located approximately 2 miles north of the Mexican border, and the conditions are very hot, dry, and windy. Since then, several wind strip plantings have been established throughout the state, under many different growing conditions.

The wind strips provides two important benefits during the critical wind erosion period:

1. Establishes a barrier to protect against wind erosion.
2. Prevents soil particles from moving across the soil surface causing damage to young seedlings.

In 2003, two new Giant sacaton wind strips were established in Tatum and Lovington, New Mexico. The

LLPMC also completed evaluations on established giant sacaton wind strips in Deming, Columbus, Edgewood, Tucumcari, and Tatum, New Mexico. These trial plantings will continue to identify the potential of Giant sacaton for use in wind strips throughout the LLPMC service area.

Forage Production

In 2003, the LLPMC provided forage production assistance to a cooperator in Silver City, New Mexico. The NRCS Silver City Field Office and the LLPMC have been working with the cooperator to improve forage production on his farm since the year 2000. The cooperator has been experimenting with several different species of pasture grass. In the past, he has established trials of the wheat, rye cross Triticale, but he has been especially interested in establishing and testing warm-season native grass species.

In late 2002, the LLPMC was able to obtain San Marcos eastern gamagrass seed. It was planted at the cooperator's farm, and it has proved to be an excellent warm-season native grass for irrigated pastures. Eastern gamagrass is found mostly in the midwestern and southern United States. The LLPMC, along with other plant materials centers, has been evaluating gamagrass for several years for use in pasture plantings. This planting will test the potential for using eastern gamagrass in a grazing system in this part of New Mexico. An evaluation will be conducted in 2004 to look for percent stand and forage production.

Giant sacaton wind strip in Deming, New Mexico

Water Erosion

Frank Corn, District Conservationist for the NRCS Silver City Field Office, requested assistance from the LLPMC on a channel restoration project near San Lorenzo, NM. The site was part of a larger project slated to repair the Archuleta-Galaz Community Ditch. The ditch runs adjacent to the Mimbres River, and they both cross New Mexico Highway 90 near San Lorenzo. The high flows on the east bank of the river resulted in damaging the community ditch. The project involves stabilizing the Mimbres riverbank and repairing the community ditch.

In the first phase of the project, the east bank of the river was reconfigured, and a new concrete ditch was installed. This construction area will be planted with native tree, shrub, and grass species to help provide erosion protection and to help stabilize the riverbank. In September of 2003, the LLPMC provided native grass seed and mulch material to seed the newly constructed area. Also, the LLPMC has suggested planting dormant pole cuttings to further stabilize the riverbank. In 2004, the LLPMC will evaluate the revegetation effort.

Archuleta-Galaz Community Ditch Project before the reconstruction.

Archuleta-Galaz Community Ditch Project after the reconstruction

Plant Materials Lauded for Riparian Restoration in Colorado

Opportunity to Work With Different Materials

The Los Lunas Plant Materials Center recently received high praise from the City of Pueblo, Colorado for explaining and educating city staff about the Plant Materials Center's proven technology for riparian restoration. The Pueblo project used the Los Lunas Plant Materials Center cottonwood pole cutting technology in restoring an 11-river-mile stretch on the Arkansas River.

The city of Pueblo employees were pleased with time taken by the Plant Materials Center staff to explain and educate us on the pole planting process. The staff was willing to work with the city to participate in the project that resulted in overall cost savings.

Riparian restoration site along the Arkansas River

The USDA-NRCS Los Lunas Plant Materials Center had entered into a joint project with the Army Corps of Engineers, the state of Colorado, and the city of Pueblo, Colorado to restore the 11-river-mile stretch on the Arkansas River. Amidst skepticism by the local nursery industry and others, the Plant Materials Center introduced their proven methods of riparian restoration technology to the Pueblo, Colorado area.

The first phase of the project was done during February 2003 when the Plant Materials Center planted 2,200 rootless cottonwood pole cuttings in a 50-acre horse pasture on the Arkansas River in Pueblo. In July, Champe Green, biologist for the Albuquerque district Army Corps of Engineers, did a walk-through evaluation and reported a survival rate of above 90 percent.

The initial planting of over 2,200 cottonwood poles was an outstanding success that exceeded the City of Pueblo's expectations and provided a highly visible impact to Arkansas River landscape. The success of this initial planting has generated a number of inquires from property owners and conservation agencies in southeastern Colorado.

This project will provide the opportunity for the Los Lunas Plant Materials Center to work with new riparian species and the Pueblo ecotypes. Species the Plant Materials Center were able to work with included golden current, Great Plains false-willow, and black chokecherry.

Plant Materials Center Joins in Interagency Bosque Restoration Project

Investigation Assesses Impacts to Native Wildlife Species

NRCS's Plant Materials Center in Los Lunas is joining with other agencies to investigate ways to rehabilitate the bosque along the middle Rio Grande that best enhance the wildlife habitat.

Some land managers are asking what is the impact to native wildlife species when fire in the middle Rio Grande bosque or exotic species treatment occurs. The LLPMC is joining as part of an interagency team to investigate this.

A number of agencies are joining together to better understand the best ways to rehabilitate the bosque. In addition to NRCS, the project is being supported by the U.S. Forest Service–Rocky Mountain Experiment Station in Albuquerque, Bosque del Apache Wildlife Refuge, Middle Rio Grande Conservancy District, City of Albuquerque Open Space, Bureau of Land Management, and the New Mexico Department of the Environment.

Four 50-acre test plots have been identified at three different locations for a total of 12 test plots altogether. The locations are at the Bosque del Apache Nationals Wildlife Refuge, the Village of Bosque, and in the Albuquerque area. Three of the test plots at each location will be given different treatments, and the fourth plot will be left untreated as a control to the study.

The three treatments that will be used include: (1) mechanical removal of exotic shrubs and trees, and dead and downed wood, (2) partial removal of exotic shrubs and trees, and dead and downed wood followed by light prescribed fire, and (3) mechanical removal of exotic shrubs and trees, and dead and downed wood with re-vegetation of native plants.

Joe Aragon, Mary Cloven, and Joel Lee plant tall-pot shrubs in understory of the bosque

The Los Lunas Plant Materials Center is designing and installing the vegetation treatments at the three locations using ten common native tree and shrub species.

The native tree and shrub species being used are either dormant pole cuttings that are being planted down to water-table depth, or tall pot containerized plants that will be sub- irrigated twice for the first two years of establishment. Several soil and water conservation districts are getting involved in restoration projects of their own. The Cuidad Soil and Water Conservation District in Albuquerque, for example, is working on revegetating sites at the Rio Grande Nature Center, Hispanic Cultural Center, and privately owned land that burned this past summer.

Propagation of New Mexico Penstemon for the US Fish and Wildlife Service

The Los Lunas Plant Materials Center (LLPMC) began a cooperative project with the US Fish and Wildlife Service (USFWS) in 2003 to propagate New Mexico penstemon (*Penstemon neomexicanus* Wooton & Standley) seedlings. These seedlings will be planted on private lands near Cloudcroft, New Mexico to provide the sole food source for the larvae of the rare endemic Sacramento Mountains checkerspot butterfly (*Euphydryas anicia cloudcrofti*). The USFWS is proposing to list this butterfly species as federally endangered due to the detrimental effects of land development and grazing on the habitat of Sacramento Mountains checkerspot butterfly. The USFWS Partners for Fish and Wildlife Program is working with Otero County, the Village of Cloudcroft, the Mescalero Apache Tribe, private landowners, and conservation groups to enhance and

Sacramento Mountains checkerspot butterfly (*Euphydryas anicia cloudcrofti*).

restore habitat in an effort to preclude the listing of the checkerspot butter

The USFWS will develop Private Lands Agreements with landowners to establish plots of New Mexico penstemon as a larval food source, a source of seed, and for educational purposes related to the conservation of candidate species.

Personnel from the Lincoln National Forest collected seed of New Mexico penstemon from eight locations in the vicinity of Cloudcroft, NM in September and October 2003. These sites were typically open glades in ponderosa pine and spruce/fir forests at elevations ranging from 8300 to 8800 feet. The seed was cleaned and separated by size and density at the LLPMC, sown in 2.5 inch deep plug trays, and cold stratified for 9 weeks at 40°F. Approximately 1300 seed were sown in each plug tray. The percentage of seed that emerged in the greenhouse one month after end of cold stratification was approximately 10 to 20%. These seedlings will be grown in 10 cubic-inch containers for outplanting in late summer after the expected summer rains have replenished soil moisture. Some seedlings will be reserved for small seed production plots in the event that wild seed sources will not meet future seed demand.

New Mexico penstemon (Penstemon newomexians Wooton & Standley)

Plant Materials Center Advisory Meeting

The Los Lunas Plant Materials Center will hold its annual advisory committee meeting in the fall of 2004. Following are the current members of the advisory committee:

John D. Allen, ARC, USDA-NRCS

Blake and Tye Curtis, Curtis & Curtis Seed, Inc., Clovis, New Mexico

Dr. Richard Becker, Ph. D. USDA-NRCS Riparian Liaison

Walter Henes, Southwest Grass, Inc. Delores, Colorado

George Chavez, USDA-NRCS Rangeland Management Specialist

Preston Craig, Leroy Hacker, Certified Seed Growers, Los Lunas, New Mexico

Ben. W. Creighton, Jr., ARC, USDA-NRCS

Champ Greene, Army Corp of Engineers

Hollis Fuchs, ARC, USDA-NRCS

Todd Miller,City of Albuquerque, Open Space Division

Barbara Garrett, USDA-NRCS Public Affairs Specialist

Jessica Sapunar-Jursich, Rio Grande Nature Center

Dan Thomas, ARC, USDA-NRCS

Kenneth R. Walker, AC, USDA-NRCS

John Tunberg, USDA-NRCS Resource Conservationist

Steve Durkovich, Little Wahoo Ranch

Norman D. Vigil, AC, USDA-NRCS

Deborah Finch, USDA Forest Service

Denise Smith, US Fish & Wildlife Serivce

John Taylor, Bosque del Apache

Yasmine Najimi, Middle Rio Grande Conservancy District

John Harrington, NMSU Mora Research Center

Nancy Umbreit, U.S. Bureau of Reclamation

Kenneth B. Leiting, State Resource Conservationist, USDA-NRCS

Russ Haas, PM Technical Advisor, National Parks Service

Los Lunas Plant Materials Center Staff: Dave Dreesen, Greg Fenchel, Danny Goodson, Joel Lee